Attachment

NEW CLAIMS 21-44

A1

21. A module filter (1) comprising:

a container (2), comprised of at least one container housing (3) and a container bottom (4) and comprising at least one admission (6') for a non-filtrate (6) and a discharge for the filtrate (7);

at least one filter module (8) arranged in said container housing (3) and comprised of several stacked, disc-shaped filter cells (9) substantially comprised of filter material (40) and having an inner space (24), wherein said filter cells (9) have a central opening (10), respectively, wherein said central openings (10) form at least one central channel (28) connected in fluid communication with said inner space (24) of said filter cells (9);

said central channel (28) connected to said admission (6') for the non-filtrate;

said container housing (3) having a space (3') surrounding said filter cells (9), wherein said space (3') is connected with said discharge (7') for the filtrate;

circular disc-shaped drainage support bodies (17) arranged between said filter cells (9), wherein said drainage support bodies (17) extend at least approximately over the entire surface area of said filter cells (9);

said drainage support bodies (17) having a plurality of drainage channels (35), respectively, wherein said drainage channels (35) extend toward an outer rim of said drainage support bodies (17);

said drainage support bodies (17) having projections (31, 32) projecting

axially away from said drainage support bodies (17) and extending in a radial direction of said drainage support bodies (17), respectively;

wherein between said projections (31, 32) intermediate spaces are defined; and

wherein said intermediate spaces form said drainage channels (35) and are configured to remove the filtrate.

22. The module filter according to claim 21, wherein said filter cells (9) and said drainage support bodies (17) have a descending slope extending from said central channel (28) radially outwardly.

23. The module filter according to claim 21, wherein said drainage support bodies (17) and said filter cells (9) are formed as circular disks and have at least substantially the same diameter.

24. The module filter according to claim 23, wherein said drainage channels (35) extend in the form of radial beams to a peripheral rim of said drainage support body (17).

25. The module filter according to claim 21, wherein on a side of each one of said filter cells (9) facing said central channel (28) a support element (41) is provided, wherein said support elements (41) are positioned such that said filter material (40) of each one of said filter cells (9) is spaced apart by said support elements (41), respectively, wherein said support element (41) is a support ring having a penetration (44), wherein said penetration (44) provides a fluid communication from said central channel (28) to said inner space (24) of said filter cells (9), respectively.

26 The module filter according to claim 25, wherein said support ring (41) has

an inner diameter (D) matching approximately the diameter of said central opening (10).

27. The module filter according to claim 25, wherein said support ring (41) is comprised of a flat annular base body (42), wherein said base body (42) has spaced apart axial projections (43) extending radially strip-shaped on both sides of said base body (42).

28. The module filter according to claim 1, wherein each one of said filter cells (9) is comprised of an upper layer (9.1) and a lower layer (9.2) of said filter material (40) and a frame (29), wherein radially outer rims (51) of said upper and lower layers (9.1, 9.2) are connected by said frame (29) to one another.

29. The module filter according to claim 28, wherein said filter material (40) is a nonwoven filter cloth.

30. The module filter according to claim 28, wherein each one of said frames (29) comprises an underside with support knobs (30) and said frames (29) are supported on one another by said support knobs (30).

31. The module filter according to claim 21, further comprising a closure ring (11) arranged axially at the ends of said filter module (8), respectively, and coaxially to said central opening (10), wherein said filter module (8) is comprised of several of said filter cells (9) and several of said drainage support bodies (17) alternatingly stacked on one another.

32. The module filter according to claim 31, further comprising a securing element (23) configured to secure said alternatingly stacked filter cells (9) and drainage support bodies (17) and to receive tensile forces, wherein said securing element (23) is arranged at a side of said alternatingly stacked filter cells (9) and drainage support bodies

(17) facing said central channel (28).

33. The module filter according to claim 32, wherein said securing element (23) is a sleeve (23) comprised of metal and having a mantle surface provided with a plurality of openings (39), wherein said sleeve (23) has end faces and is connected with said end faces positive-lockingly with said closure rings (11).

34. The module filter according to claim 33, wherein said closure ring (11) has a recess in the form of an annular ring (26) configured to receive a sealing ring (19).

35. The module filter according to claim 21, further comprising:

a central tie rod (33) arranged in said central channel (28);

a fastening arrangement (25), wherein said central tie rod (33) is supported by said fastening arrangement (15) on said container bottom (4); and

a drainage cover plate (34) arranged at an upper end of said central tie rod (33).

36. The module filter according to claim 35, wherein said container (2) has a container cover (36) and wherein said drainage cover plate (34) is supported by a support cap (12) with support ribs (13) on said container cover (36).

37. The module filter according to claim 35, wherein said drainage cover plate (34) is a press plate (14) provided with an axial tie rod.

38. The module filter according to claim 35, wherein several of said filter modules (8) are aligned with said central openings (10) axially above one another and are secured by said drainage cover plate (34) in said container (2).

39. The module filter according to claim 38, wherein said container (2) has a

container cover (36) and wherein said drainage cover plate (34) is supported by a support cap (12) with support ribs (13) on said container cover (36).

40. The module filter according to claim 38, wherein said drainage cover plate (34) is a press plate (14) provided with an axial tie rod.

41. The module filter according to claim 38, further comprising a drainage bottom plate (46) arranged between said container bottom (4) and a lowermost one of said filter modules (8), wherein said drainage bottom plate (46) has a recess (47) in an area neighboring said discharge (7').

42. The module filter according to claim 38, further comprising a pressing device (49) configured to secure said filter modules (8) between said drainage cover plate (34) and said drainage bottom plate (46).

43. The module filter according to claim 42, wherein said container (2) has a container cover (36) and wherein said pressing device (49) is supported external to said container (2) on said container cover (36).

44. The module filter according to claim 42, wherein said pressing device (49) is supported inside said container (2) on said container bottom (4) by said central rod (33) and said fastening arrangement (15).